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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,667	01/22/2004	Naotoshi Nishioka	0307858 H8013US	5163

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EXAMINER

SUN, SCOTT C

ART UNIT PAPER NUMBER

2182

DATE MAILED: 03/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/762,667	NISHIOKA, NAOTOSHI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Scott Sun	2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/22/2004</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to by the examiner because of the following deficiencies:
2. Figure 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).
3. The drawings are objected to under 37 CFR 1.83(a) because they fail to show "a size of the second register is set in accordance with the storage capacity of the first memory" as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).
4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 3 and 4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, claims 3 and 4 recites "a size of the second register is set in accordance with the storage capacity of the first memory". Neither the specification nor the drawings provide any detail on how a size of the register is set.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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8. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. The term "substantially" in claim 11 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the purpose of continuing prosecution, "substantially matches" will be interpreted as "matches".

10. The following rejections are made based on the examiner's best interpretation of the claims in light of the 35 USC 112 rejections above.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 1-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Jahnke (US Patent #6,816,921).

13. Regarding claim 1, Jahnke discloses a data transfer control device (system in figure 3) for controlling data transfer between a first memory (RAM) whose storage

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capacity is arbitrarily set and a second memory corresponding to a buffer memory (register on a second peripheral; paragraph 42) incorporated in a peripheral module, said data transfer control device comprising:

A first register (target word size register; TWS 322) for storing a first value representing a first number of times for performing data transfer to suit a storage capacity of the second memory (paragraph 41, 42). Examiner notes that Jahnke teaches target word size determines, in combination of source word size, number of writes performed at target peripheral.

A second register (CNTVAL register 327) for storing a second value representing a second number of times for performing data transfer to match an amount of transferring data stored in the first memory (paragraph 28).

A controller (DMA control logic and state machine; middle of figure 3) for controlling transferring of m-bit data, where 'm' is an integer arbitrarily set (Jahnke discloses it being 8-bit, 16-bit, or 32-bit), based on the first value while controlling writing operations for the second memory (paragraph 42), and for determining a timing to output an interrupt signal based on the second value with respect to a Central Processing Unit managing the first memory storing the transferring data (paragraph 48). Examiner notes that DMA by definition controls transfer of data between a memory and another device, often with little or no CPU overhead. For more details on DMA, also see the background section disclosed by Jahnke, and specifically paragraphs 6 and 7.

14. Regarding claim 2, Jahnke discloses a data transfer control device according to claim 1, and further discloses wherein when a number of times for actually performing

data transfer between the first memory and the second memory matches the second value set to the second register, the controller outputs the interrupt signal to the Central Processing Unit (paragraphs 28, 46, 48). Examiner notes that Jahnke discloses CNTVAL counter 333 is initialized with the total number of words (value stored in CNTVAL register 327) designating length of the transfer. Each word transferred decrements the counter until it reaches zero, when CPU is interrupted. This is effectively when the number of transfers matches the original value set in the counter.

15. Regarding claim 3 and 4, Jahnke discloses a data transfer control device according to claim 1 and 2, and further discloses wherein a size of the second register is set in accordance with the storage capacity of the first memory (paragraph 28). Examiner notes that size of CNTVAL register 327 is large enough to hold a value representing the transfer length from a source.

16. Regarding claim 5, Jahnke discloses a data transfer control device according to claim 1, and further discloses wherein the transferring data are sequentially transferred from the first memory to the second memory in accordance with a DMA transfer (paragraph 39 and throughout reference).

17. Regarding claim 6, Jahnke discloses a data transfer control device according to claim 1, and further discloses wherein the storage capacity of the second memory is set to store n-byte data (where n is an integer arbitrarily set) comprising multiple sets of m-bit data (paragraphs 41, 42). Examiner notes that a byte is equal to 8-bits.

18. Regarding claim 7-11, examiner notes that the limitations in these claims are substantially similar to claims 1-6 above. Therefore the same arguments are used.

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19. Further regarding claim 10, Jahnke discloses that the n-byte data are collectively transferred from the first memory to the second memory by sequentially transferring the m-bit data the first number of times so as to satisfy the storage capacity of the second memory (paragraph 42, 43). Examiner notes Jahnke teaches an example where 32-bit word (4 bytes) of data from a source is transferred to a target 8-bits at a time, requiring four writes.

20. Further regarding claim 11, Jahnke discloses a data transfer control device according to claim 1, and further discloses whereby when a number of times for actually transferring the m-bit data substantially matches a value calculated by dividing a total number of bits of the transferring data by 'm', the interrupt signal is output to the CPU (paragraphs 46, 48). Examiner notes that Jahnke teaches each word transferred from a source decreases the CNTVAL counter by one. Using the same example above with 32-bit source and 8-bit target, where the number of transfers per word transferred is four. Multiply this by the total number of words (initial value of CNTVAL counter) is the total number of transfers before CNTVAL counter reaches zero and interrupts the CPU. The formula is the following:

$$a. \quad \# \text{ of transfers until interrupt} = \# \text{ of transfers per word} \times \# \text{ of total words}$$

Note that number of transfers per word is equivalent to word size in bits divided by the number of bits per transfer:

$$b. \quad \# \text{ of transfers per word} = \text{word size in bits} / \# \text{ of bits per transfer}$$

Substitute this into formula 'a' gives:

$$\begin{aligned} c. \quad \# \text{ of transfers until interrupt} &= (\text{word size in bits} / \# \text{ of bits per transfer}) \times \# \text{ of total words} \\ &= (\text{word size in bits} \times \# \text{ of total words}) / \# \text{ of bits} \end{aligned}$$



= (total number of bits) / # of bits

This is precisely the same result claimed by the applicant.

### **Conclusion**

21. Other publications are cited to further show the state of the art with respect to data transfer control. Refer to form 892, "Notice of References Cited", for a complete list of relevant prior arts cited by the examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Sun whose telephone number is (571) 272-2675. The examiner can normally be reached on M-F, 10:30am-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim N. Huynh can be reached on (571) 272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SS

  
KIM HUYNH  
SUPERVISORY PATENT EXAMINER  
2/2/06